

What is claimed is:

1. A plasma etching apparatus for etching an organic film, comprising:

a semiconductor ring disposed on an outer circumference of a substrate to be processed, and having a bias voltage applied to the ring.

2. The plasma etching apparatus according to claim 1, further comprising a resin layer formed of a carbon material disposed on an inner wall surface of a processing chamber.

3. The plasma etching apparatus according to claim 1, wherein a carbon monoxide gas is added to an etching gas.

4. The plasma etching apparatus according to claim 1, wherein a methane gas is added to an etching gas.

5. The plasma etching apparatus according to claim 1, wherein at least either a material or a size of a susceptor member disposed between said ring and an electrode is adjusted according to an area to be etched on said substrate to be processed.

6. A plasma etching method for etching an organic film, comprising:

disposing a semiconductor ring on an outer circumference of a substrate to be processed, applying a bias voltage to the

ring, and controlling the bias voltage being applied, thereby controlling the degree of deposition of silicon-based reaction products on the surface of the ring.

7. The plasma etching method according to claim 6, further comprising disposing a resin layer formed of a carbon material on an inner wall surface of a processing chamber.

8. The plasma etching method according to claim 6, further comprising adding a gas containing carbon to an etching gas.